

CLAIMS

What is claimed is:

- 5 1. A method of automatic repeat request (ARQ) for a plurality
of packets to be transmitted to a receiver comprising:
 performing automatic repeat request for packets belonging to
respective ones of a plurality of packet flows independent from and without
affecting the transmission of packets of others of the plurality of packet flows,
10 wherein each of the plurality of packet flows corresponds to a specified type
of service.
2. The method of Claim 1 further comprising parsing each of
the plurality of packets to be transmitted to the receiver into a respective one
15 of the plurality of packet flows.
3. The method of Claim 2 further comprising storing each of the
plurality of packets into a location in memory based upon packet flow.
- 20 4. The method of Claim 1 wherein the performing step
comprises transmitting the plurality of packets to the receiver by packet flow
according to a transmit descriptor, the transmit descriptor specifying at least
how many packets of which of the plurality of packet flows to transmit to the
receiver.
- 25 5. The method of Claim 1 wherein the performing step
comprises assigning a time-to-live value to each packet to be transmitted to
the receiver, the time-to-live value representing the maximum number of
transmit attempts of the packet to the receiver including re-transmit attempts
30 in performing the automatic repeat request.

6. The method of Claim 5 wherein the time-to-live value is assigned based upon the type of service of the packet.

5 7. The method of Claim 5 further comprising decrementing the time-to-live value after each transmit attempt.

8. The method of Claim 1 wherein the performing step comprises:

10 transmitting packets from two or more of the plurality of packet flows to the receiver;

 receiving an acknowledgement from the receiver, the acknowledgement indicating whether or not each of the packets were received in error; and

15 re-transmitting a respective packet of a respective one of the plurality of packet flows, in the event the acknowledgement indicates that the respective packet was received in error, without affecting the subsequent transmission of packets of others of the plurality of packet flows.

20 9. The method of Claim 8 wherein the transmitting step comprises transmitting the packets within a single transmit frame and wherein the re-transmitting step comprises re-transmitting the respective packet within a subsequent single transmit frame without affecting the subsequent transmission of the packets of the others of the plurality of packet
25 flows within the subsequent single transmit frame.

10. The method of Claim 1 wherein the performing step comprises performing the automatic repeat request for the packets belonging to the respective ones of the plurality of packet flows and transmitted within a
30 single transmit frame independent from and without affecting the

transmission of the packets of the others of the plurality of packet flows transmitted within the single transmit frame.

5 11. The method of Claim 1 wherein the performing step comprises performing selective-repeat automatic repeat request for the packets belonging to the respective ones of the plurality of packet flows independent from and without affecting the transmission of the packets of the others of the plurality of packet flows.

10 12. A method of automatic repeat request (ARQ) for a plurality of packets to be transmitted to a receiver comprising:

performing automatic repeat request on a first set of one or more packets transmitted in a first portion of a transmit frame, wherein the first set of one or more packets belong to a respective one of a plurality of packet flows; and

15 performing automatic repeat request on a second set of one or more packets transmitted in a second portion of the transmit frame, wherein the second set of one or more packets belong to another respective one of the plurality of packet flows,

20 wherein the automatic repeat request performed on the first set of one or more packets is independent from and does not affect the transmission of packets in the second portion of the transmit frame.

25 13. The method of Claim 12 wherein the automatic repeat request performed on the second set of one or more packets is independent from and does not affect the transmission of packets in the first portion of the transmit frame.

30 14. The method of Claim 12 wherein each of the plurality of packet flows contains packets having one of a plurality of types of service.

15. The method of Claim 12 wherein the performing steps comprise performing selective-repeat automatic repeat request.

5 16. An automatic repeat request system comprising:
 means for performing automatic repeat request for packets
belonging to respective ones of a plurality of packet flows independent from
and without affecting the transmission of packets of others of the plurality of
packet flows, wherein each of the plurality of packet flows corresponds to a
10 specified type of service.

17. The system of Claim 16 wherein the means for performing
comprises means for assigning a time-to-live value to each packet to be
transmitted to the receiver, the time-to-live value representing the maximum
15 number of transmit attempts of the packet to the receiver including re-
transmit attempts in performing the automatic repeat request.

18. The system of Claim 16 wherein the means for performing
comprise means for performing the automatic repeat request for the packets
20 belonging to the respective ones of the plurality of packet flows and
transmitted within a single transmit frame independent from and without
affecting the transmission of the packets of the others of the plurality of
packet flows transmitted within the single transmit frame.

25 19. The system of Claim 16 wherein the means for performing
comprises:
 a packet transmission mechanism for transmitting packets from
two or more of the plurality of packet flows to the receiver;
 an acknowledgement processing mechanism for receiving an
30 acknowledgement from the receiver, the acknowledgement indicating

whether or not each of the packets were received in error; and

the packet transmission mechanism for re-transmitting a
respective packet of a respective one of the plurality of packet flows, in the
event the acknowledgement indicates that the respective packet was received
5 in error, without affecting the subsequent transmission of packets of others of
the plurality of packet flows.

20. A method of automatic repeat request (ARQ) comprising:

assigning a time-to-live value to a packet to be transmitted over

10 a forward communication channel to a receiver, the time-to-live value
representing a maximum number of transmit attempts of the packet over the
forward communication channel including re-transmit attempts using the
automatic repeat request, the time-to-live value corresponding to a type of
service corresponding to the packet.

15 21. The method of Claim 20 further comprising transmitting the
packet over the forward communication channel to the receiver.

22. The method of Claim 20 further comprising:

20 receiving a negative acknowledgement from the receiver via a
reverse communication channel, the negative acknowledgement indicating
that the packet was received in error;

re-transmitting the packet to the receiver, in the event a number
of transmit attempts of the packet including re-transmit attempts using the
25 automatic repeat request does not exceed the time-to-live value.

23. The method of Claim 22 further comprising:

decrementing the time-to-live value by one; and

30 wherein the re-transmitting step comprises re-transmitting the
packet to the receiver, in the event the time-to-live value is greater than zero.

24. The method of Claim 22 further comprising deleting the packet from memory, in the event the total number of transmit attempts of the packet exceeds the time-to-live value.

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25. The method of Claim 20 wherein the time-to-live value represents n transmit attempts available for the packet and further comprising deleting the packet from memory after n transmit attempts including re-transmit attempts using the automatic repeat request.

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